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U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: FRR/12507

U.S. APPLICATION NO. (If known, see 37 CFR 1.5): 09/831838

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/CH99/00530	11 November 1999	16 November 1998

TITLE OF INVENTION: METHOD FOR THE RETRIEVAL OF INFORMATION FROM DATABASES AND SYSTEM FOR CARRYING OUT THE SAID METHOD

APPLICANT(S) FOR DO/EO/US: AESCHLIMANN, Marcel; BALSIGER, Peter; DWORZAK, Christoph; PRITCHARD, Jane; SOLLBERGER, Alexander

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. [X] This is a **FIRST** submission of items concerning a filing under 35 U.S C. 371.
2. [ ] This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. [ ] This is an express request to promptly begin national examination procedures (35 U.S.C. 371(f)).
4. [X] The US has been elected by the expiration of 19 months from the priority date (PCT Article 31).
5. [X] A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. [ ] is attached hereto (required only if not communicated by the International Bureau).
   b. [X] has been communicated by the International Bureau.
   c. [ ] is not required, as the application was filed in the United States Receiving Office (RO/US).
6. [X] An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
7. [X] Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. [ ] are attached hereto (required only if not communicated by the International Bureau).
   b. [ ] have been communicated by the International Bureau.
   c. [ ] have not been made; however, the time limit for making such amendments has NOT expired.
   d. [X] have not been made and will not be made.
8. [ ] An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. [ ] An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. [ ] An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 16 below concern document(s) or information included:

11. [X] An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. [ ] An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. [X] A FIRST preliminary amendment.
    [ ] A SECOND or SUBSEQUENT preliminary amendment.
14. [ ] A substitute specification.
15. [ ] A change of power of attorney and/or address letter.
16. [X] Other items or information:

    Copy of International Preliminary Examination Report,
    Copy of International Search Report.

U.S. APPLICATION NO (if known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO	ATTORNEY'S DOCKET NUMBER
09/831838	PCT/CH99/00530	FRR/12507

17. [X] The following fees are submitted:

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO **$1000.00**

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO **$860.00**

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO **$710.00**

International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) **$690.00**

International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) **$100.00**

	CALCULATIONS PTO USE ONLY
ENTER APPROPRIATE BASIC FEE AMOUNT =	$ 860.00
Surcharge of **$130.00** for furnishing the oath or declaration later than [ ] 20 [X] 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	$ 130.00

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	23 - 20 =	3	X **$18.00**	$ 54.00
Independent claims	2 - 3 =	0	X **$80.00**	$ 0.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ **$270.00**	$ 0.00
TOTAL OF ABOVE CALCULATIONS =				$ 1,044.00
[ ] Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				$ 0.00
SUBTOTAL =				$ 1,044.00
Processing fee of **$130.00** for furnishing the English translation later than [ ] 20 [X] 30 months from the earliest claimed priority date (37 CFR 1.492(f)). +				$
TOTAL NATIONAL FEE =				$ 1,044.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property +				$ 0.00
TOTAL FEES ENCLOSED =				$ 1,044.00
			Amount to be refunded:	$
			charged:	$

a. [X] A check in the amount of $ 1,044.00 to cover the above fees is enclosed.

b. [ ] Please charge my Deposit Account No. _____ in the amount of $_____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. [X] The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 18-0160. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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SIGNATURE

David E. Spaw
NAME

34732
REGISTRATION NUMBER

09/831838

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Marcel Aeschlimann, Peter Balsiger, Christoph Dworzak, Jane Pritchard, and Alexander Sollberger
Serial No.:	N/A Art Unit: N/A
Filing Date:	Herewith
International Application No.:	PCT/CH99/00530
International Filing Date:	November 11, 1999
Title:	METHOD FOR THE RETRIEVAL OF INFORMATION FROM DATABASES AND SYSTEM FOR CARRYING OUT THE SAID METHOD
Examiner:	N/A
Docket No.:	FRR/12507

PRELIMINARY AMENDMENT "A"

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Please amend the above-identified application, prior to examination thereof, in the following manner.

Express Mail Label No. EL517857578US

IN THE CLAIMS:

Please amend the claims as follows:

1. (Amended) A method for the acquisition of information from at least one database managed by a computer with a search engine, wherein from a user terminal that cooperates with substantially stationary transmitting stations of a communication network, an information request is established, wherein the information request is transmitted to the computer and wherein the computer selects and/or organizes information from the database and transmits it to the user terminal, comprising the steps of:

providing the information stored in the database with location attributes;

transmitting the information request to the computer together with location data defining the location of the user terminal; and,

correlating the location data and location attributes for selecting and/or organising the information.

2. (Amended) The method in accordance with claim 1, wherein the user terminal is mobile and the user terminal generates or acquires the location data and transmits these to the computer.

3. (Amended) The method in accordance with claim 2, wherein the user terminal for generating or acquiring the location data contacts at least one transmitting station, and wherein, during this contact, data defining the identity of the at least one transmitting station is transmitted to the user terminal and the user terminal procures from a memory device data defining the location of the transmitting station on the basis of the transmitted identity data.

4. (Amended) The method according to claim 3, wherein the memory device for the data defining the location of the transmitting stations is provided in the user terminal or is accessible by the user terminal through the communication network.

5. (Amended) The method in accordance with claim 3, wherein the data defining the location of transmitting stations is automatically transmitted in dependence upon the location of the user terminal to the user terminal and is stored in a memory device of the user terminal.

6. (Amended) The method according to claim 2, wherein for generating or acquiring the location data, the user terminal contacts at least one transmitting station and wherein, during this contact, data defining the location of the transmitting station, are transmitted to the user terminal.

7. (Amended) The method in accordance with claim 6, wherein the data defining the location of transmitting stations is transmitted to the user terminal through a service channel.

8. (Amended) The method according to claim 3, wherein the data defining the location of transmitting stations is related to the geographical position and to the coverage area of the transmitting stations.

9. (Amended) The method in accordance with claim 3, wherein, during the contact between the user terminal and the transmitting stations, data relating to the transmission characteristics are recorded and said transmission characteristic data, in addition to the data

defining the location of the transmitting station, is utilized for generating the location data.

10. (Amended) The method according to claim 9, wherein the recorded data is related to the signal transmit times, the signal intensity, signal reflections or the radio bearing angle.

11. (Amended) The method in accordance with claim 3, wherein, for generating the location data, the user terminal selects from a plurality of contacted transmitting stations, ones with distances and directions to the user terminal being as different as possible.

12. (Amended) The method according to claim 1, wherein for search engine control, additional search criteria are employed in addition to the determined location data.

13. (Amended) The method in accordance with claim 12, wherein the additional search criteria are geographical attributes of the determined location and/or the time.

14. (Amended) The method according to claim 12, wherein the determined location data is stored in memory together with the time at which they were determined, and said stored data is used with movement vectors for further location determinations.

15. (Amended) The method in accordance with claim 1, wherein, for search engine control, in addition to the acquired or generated location data, further search criteria are entered on the user terminal.

16. (Amended) A system for the acquisition of information, said system comprising a

communication network with a multitude of substantially stationary transmitting stations, a plurality of user terminals cooperating with the communication network for requesting and receiving information and at least one database with memory devices for storing the information and a computer with a search engine for managing the database and for controlled transmission of information to user terminals, wherein the system further comprises means for generating and acquiring location data relating to the location of the user terminals, and means for transmitting the location data to the computer of the database, and wherein the computer and the database are equipped for selecting and/or organizing information in accordance with location data.

17. (Amended) The system in accordance with claim 16, wherein at some of the user terminals are mobile and the means for generating or acquiring location data is provided in the user terminals.

18. (Amended) The system according to claim 17, wherein the means for generating or acquiring location data comprise means for contacting transmitting stations and means for receiving data from the contacted transmitting stations.

19. (Amended) The system in accordance with claim 18, wherein the means for generating and acquiring location data comprise means for acquiring data from external memory devices.

20. (Amended) The system in accordance with claim 19, wherein the communication network comprises a service channel for transmitting data between transmitting stations and user terminals and external memory devices.

21. (Amended) The system according to claim 16, further comprising means for recording data relating to the transmission characteristics of the transmission between the user terminal and a transmitting station, and wherein the means for generating location data is equipped for generating location data from acquired and recorded data.

22. (Amended) The system in accordance with claim 21, wherein the means for recording transmission characteristics is equipped for recording signal transmit times, signal intensities, signal reflections and/or radio bearing angles.

23. (Amended) The system according to claim 16, wherein the communication network is a UMTS - network or a GSM - wireless network.

IN THE ABSTRACT:

Please replace the abstract with the following new abstract of the disclosure:

ABSTRACT OF THE DISCLOSURE

A method and system for acquiring information from a database with a search engine in which information with location attributes is stored. The information is requested via a user terminal, in particular from a mobile user terminal, which cooperates with substantially stationary transmitting stations. The request is transmitted from the user terminal to a computer managing a database together with data, which define the location of the user terminal. The location data is generated by the user terminal or, alternatively, acquired on the basis of data that is transmitted to the user terminal when it establishes contact with at least one transmitting station of the communication network. The data, which is location data or used for generating location data, is procured from memory devices or through measurements, and relate to geographical locations of transmitting stations, to the coverage area of transmitting stations, to signal transmit times, signal intensities, signal reflections, radio bearing angles, etc. The computer makes use of the location data for controlling the search engine such that only information with corresponding location attributes is selected from the database or else information is organized according to the location attributes. The information selected and/or organized according to location attributes is thereupon transmitted to the user terminal. Such information retrieval process is automatically very specific and is suitable in particular for tourism, traffic, transport and communications, economic purposes, etc.

REMARKS

Attached hereto is a marked-up version of the changes made to the application by the present Amendment.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0160, our Order No. FRR/12507.

Respectfully submitted,

RANKIN, HILL, PORTER & CLARK LLP

By: _____
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Attachment: Marked-up version of Amendments

Marked-up Version of Amendment

IN THE SPECIFICATION:

The paragraph beginning on page , line , has been amended as follows:

IN THE CLAIMS:

The claims have been amended as follows:

1. ~~[Method]~~ A method for the acquisition of information from at least one database managed by a computer with a search engine, wherein from a user terminal~~[, which co-operates]~~ that cooperates with substantially stationary transmitting stations of a communication network, an information request is established, wherein the information request is transmitted to the computer and wherein the computer selects and/or organizes information from the database and transmits it to the user terminal, ~~[characterized in that]~~ comprising the steps of:

providing the information stored in the database ~~[is provided]~~ with location attributes~~[, that]~~;

transmitting the information request ~~[is transmitted]~~ to the computer together with location data defining the location of the user terminal ~~[and that for selecting and/or organising the information,]~~; and,

correlating the location data and location attributes ~~[are correlated.]~~for selecting and/or organising the information.

2. (amended) ~~Method~~ The method in accordance with claim 1, ~~[characterized in that]~~ wherein the user terminal is mobile and ~~[that]~~ the user terminal generates or acquires the location data and transmits these to the computer.

3. (amended) ~~[Method]~~ The method in accordance with claim 2, ~~[characterized in that]~~ wherein the user terminal for generating or acquiring the location data contacts at least one transmitting station, ~~[that]~~ and wherein, during this contact, data defining the identity of the at least one transmitting station ~~[are]~~ is transmitted to the user terminal and ~~[that]~~ the user

terminal procures from a memory device data defining the location of the transmitting station on the basis of the transmitted identity data.

4. (amended) ~~[Method]~~ The method according to claim 3, ~~[characterized in that]~~ wherein the memory device for the data defining the location of the transmitting stations is provided in the user terminal or is accessible by the user terminal through the communication network.

5. (amended) ~~[Method]~~ The method in accordance with claim 3, ~~[characterized in that]~~ wherein the data defining the location of transmitting stations is automatically transmitted in dependence ~~[of]~~ upon the location of the user terminal to the user terminal and is stored in a memory device of the user terminal.

6. (amended) ~~[Method]~~ The method according to claim 2, ~~[characterized in that]~~ wherein for generating or ~~[acquiring]~~ acquiring the location data, the user terminal contacts at least one transmitting station and ~~[that]~~ wherein, during this contact, data defining the location of the transmitting station, are transmitted to the user terminal.

7. (amended) ~~[Method]~~ The method in accordance with claim 6, ~~[characterized in that]~~ wherein the data defining the location of transmitting stations~~[, are]~~ is transmitted to the user terminal through a service channel.

8. (amended) ~~[Method]~~ The method according to ~~[one of claims 3 to 7, characterized in that]~~ claim 3, wherein the data defining the location of transmitting stations~~[, relate]~~ is related to the geographical position and to the coverage area of the transmitting stations.

9. (amended) ~~[Method]~~ The method in accordance with ~~[one of claims 3 to 8, characterized in that]~~ claim 3, wherein, during the contact between the user terminal and the transmitting stations, data relating to the transmission characteristics are recorded and ~~[that these data]~~said transmission characteristic data, in addition to the data defining the location of the transmitting station ~~[are]~~, is utilized for generating the location data.

Marked-up Version of Amendment

10. (amended) [Method] The method according to claim 9, [characterized in that] wherein the recorded data [relate] is related to the signal transmit times, the signal intensity, signal reflections or the radio bearing angle.

11. (amended) [Method] The method in accordance with [one of claims 3 to 10, characterized in that] claim 3, wherein, for generating the location data, the user terminal selects from a plurality of contacted transmitting stations, ones with distances and directions to the user terminal being as different as possible.

12. (amended) [Method] The method according to [one of claims 1 to 11, characterized in that] claim 1, wherein for search engine control, additional search criteria are employed in addition to the determined location data [further search criteria are employed.].

13. (amended) [Method] The method in accordance with claim 12, [characterized in that] wherein the additional search criteria are geographical attributes of the determined location and/or the time.

14. (amended) [Method] The method according to [one of claims 2 to 13, characterized in that] claim 12, wherein the determined location data [are] is stored in memory together with the time[,] at which they were determined, and [that they are made use of as] said stored data is used with movement vectors for further location determinations.

15. (amended) [Method] The method in accordance with [one of claims 1 to 14, characterized in that] claim 1, wherein, for search engine [the] control, in addition to the acquired or generated location data, further search criteria are entered on the user terminal.

16. (amended) [System] A system for the acquisition of information, [which] said system [comprises] comprising a communication network with a multitude of substantially stationary transmitting stations, a plurality of user terminals [co-operating] cooperating with

the communication network for requesting and receiving information and at least one database with memory devices for storing the information and a computer with a search engine for managing the database and for controlled transmission of information to user terminals, ~~[characterized in that]~~ wherein the system further comprises means for generating and acquiring location data relating to the location of the user terminals, and means for transmitting the location data to the computer of the database, and ~~[that]~~ wherein the computer and the database are equipped for selecting and/or organizing information in accordance with location data.

17. (amended) ~~[System]~~ The system in accordance with claim 16, ~~[characterized in that at least a part]~~ wherein at some of the user terminals ~~[is]~~ are mobile and ~~[that]~~ the means for generating or acquiring location data ~~[are]~~ is provided in the user terminals.

18. (amended) ~~[System]~~ The system according to claim 17, ~~[characterized in that]~~ wherein the means for generating or acquiring ~~[of]~~ location data comprise means for contacting transmitting stations and means for receiving data from the contacted transmitting stations.

19. (amended) ~~[System]~~ The system in accordance with claim 18, ~~[characterized in that]~~ wherein the means for generating and acquiring location data comprise means for acquiring data from external memory devices.

20. (amended) ~~[System]~~ The system in accordance with claim 19, ~~[characterized in that]~~ wherein the communication network comprises a service channel for transmitting data between transmitting stations and user terminals and external memory devices.

21. (amended) ~~[System]~~ The system according to ~~[one of claims 16 to 20, characterized in that]~~ claim 16, further comprising means for recording data relating to the transmission characteristics of the transmission between the user terminal and a transmitting station ~~[are provided]~~, and ~~[that]~~ wherein the means for generating location data is equipped for generating

location data from acquired and recorded data.

22. (amended) [~~System~~] The system in accordance with claim 21, [~~characterized in that~~] wherein the means for recording transmission characteristics [~~are~~] is equipped for recording signal transmit times, signal intensities, signal reflections and/or radio bearing angles.

23. (amended) [~~System~~] The system according to [~~one of the claims 16 to 22, characterized in that~~] claim 16, wherein the communication network is a UMTS -network or a GSM - wireless network.

Marked-up Version of Amendment

IN THE ABSTRACT:

The Abstract of the Disclosure has been amended as follows:

--ABSTRACT OF THE DISCLOSURE

[For the acquisition of] A method and system for acquiring information from a database with a search engine[,] in which information with location attributes is stored[, the]. The information is requested [from] via a user terminal, in particular from a mobile user terminal, which [co-operates] cooperates with substantially stationary transmitting stations. The request is transmitted from the user terminal to a computer managing a database together with data, which define the location of the user terminal. [These] The location data [are] is generated by the user terminal or [else], alternatively, acquired on the basis of data[, which are] that is transmitted to the user terminal when it establishes contact with at least one transmitting station of the communication network. The data, which [are made use of as] is location data or used for generating location data, [and which are] is procured from memory devices or through measurements, and relate to geographical locations of transmitting stations, to the coverage area of transmitting stations, to signal transmit times, signal intensities, signal reflections, radio bearing angles, etc. The computer makes use of the location data for controlling the search engine [in] such [a manner,] that only information with corresponding location attributes is selected from the database or else information is organized according to [said] the location attributes. The information selected and/or organized according to location attributes is thereupon transmitted to the user terminal. Such information retrieval process is automatically very specific and is suitable in particular for tourism, traffic, transport and communications, economic purposes, etc.

[(no Figure)]--

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METHOD FOR THE RETRIEVAL OF INFORMATION FROM DATABASES AND SYSTEM FOR CARRYING OUT THE SAID METHOD

The invention is related to a method in accordance with the generic term of the independent claim. The method serves for the retrieval of information from at least one database. Furthermore, the invention relates to a system for carrying out the method in accordance with the generic term of the corresponding, independent claim.

Serving as sources for topical information are, for example radio, television, teletext, newspapers, geographical maps and plans as well as lists of all kinds, from which an information gatherer should the occasion arise searches for and chooses topical information so-to-say by hand. From databases, to which access is possible with electronic means, therefore, for example from CDs or also from the internet and intranet, information can be retrieved significantly more specifically with the help of search engines. In doing so, however, as a result of the abundance of the information and due to the formulation of the criteria, according to which a search machine is to operate, new problems are created, which in many instances discourage the information collector or even overtax him or her.

The invention now sets itself the objective of creating a method, in which the retrieval of information from databases is automatically controlled. Furthermore, the invention sets itself the objective of creating a system for carrying out the method.

This objective is achieved by the method and by the system, as they are defined in the claims.

In the method in accordance with the invention, the information is requested from a location, in particular from a variable location and the search engine utilized is controlled on the basis of criteria, which relate to this location. In other words, the search engine restricts itself to such information, which is associated with the location of the information request. Further control of the search engine by the user is conceivable, not. however a prerequisite. The system according to the invention comprises user terminals for the information retrieval and for the receiving of information, in particular mobile user terminals, means for the storage and updating of at least one database and for searching for requested information in the database, as well as a communication network for the transmission of the information request and of the requested information between the database and the user terminal. At least the mobile user terminals are equipped to be able to determine their respective current location and the at least one database is equipped for being searched on the basis of location criteria.

The method in accordance with the invention is based on a combination of a data or message transmission system with at least one database managed by a computer with a search engine. The transmission system comprises a communication network and a multitude of in particular mobile user terminals, which co-operate with the communication network. The transmission system can also comprise stationary user terminals. The installations of the communication network, in particular its transmission stations (base stations), are substantially stationary. For the purpose of a controlled searching in the at least one database, a mobile user terminal determines its current location in the communication network and transmits this to the program, by means of which information is sought in the database. Stationary user terminals advantageously retrieve corresponding location information from a memory storage device.

The at least one database contains information, which are characterized with location attributes in such a manner, that with the help of the search engine they can be selected and/or organized (sorted) in dependence of the location.

The user terminals are equipped for the requesting of information from the at least one database and for the receiving of the information. This means that, in addition to means for the transmission and receiving of information, they also comprise means for entering the request and means for displaying the requested information, for example, keyboard and display screen, as is known from the „Communicator" device of the Nokia company.

An information request is transmitted to the computer managing the database from the user terminal through the communication network together with location data concerning the user terminal. As a result, this computer is initiated to select and/or organize information on the basis of the location data and to transmit the selected and/or organized information to the user terminal.

A mobile user terminal determines its current location by contacting at least one reachable transmitting station of the network with the object of receiving information about its location or about its identity. Advantageously, during such contact characteristics of the data transmission are recorded also and are made use of for the determination of the location. The data elicited from the contact, which characterize the location of the user terminal are transmitted, for example, through a service channel to the database selected by the user. In such instances, for example, in which the establishing of a contact with transmitting stations is not possible or else would provide too inaccurate location characteristics, it is of advantage to equip the user terminal in such a manner, that the user can enter location attributes into it or can specify them more precisely by means of a manual entry.

The data necessary for the determination of the location being location data and if so required also characteristics of transmitting stations of the communication network, are e.g. stored in the transmitting stations and can be transmitted to a user terminal every time a contact is established.

On the other hand, when establishing the contact also only the identity of transmitting stations can be transmitted. The user terminal then retrieves the data necessary for the determination of the location from a corresponding memory device on the basis of the identity transmitted. For this, for example, a proprietary terminal memory device can be provided for permanently storing locations and if so required further characteristics of transmitting stations of the whole communication network. The same data can also be stored on a card interchangeably located in the user terminal, to which a provider has access for the purpose of updating the data. An updating of this kind can be carried out during system idle times. Because for an extensive network and for accurate indications such memory device has to be very large and also has to be updated time and again, it is more advantageous to store and to update the corresponding data in a memory device accessible through the communication network and to make it available essentially continuously to the user terminal in dependence of its current location, for example, via a service channel.

The simplest method for the determination of the location consists in assigning the user terminal to that transmitting station, which is situated closest to its location and to define its location as within the coverage area of this transmitting station. In a mobile telephone network of today, coverage areas of this kind have a diameter of approximately 100 m up to 10 km, which - depending on the requested information - may already be sufficient for a corresponding selection or organization of the information. The location of the user terminal in this case corresponds to the coverage area of the transmitting station and as such it can be directly taken over from the data of the communication network. In order to enhance the accuracy, the coverage areas

can be experimentally established. in order that they already include corrections for signal reflections, etc.

If the user terminal is able to make contact with two or more than two stationary transmitting stations, then the location of the user terminal can be significantly more accurately determined in substantially the same manner, it being a location within the overlap area of the coverage areas of the transmitting stations. Data, which characterize an overlap area of this kind, either (like the coverage areas of the individual transmitting stations) can be made available by the communication network or else can be determined in the user terminal with the help of a corresponding algorithm starting from the data regarding the coverage areas of the transmitting stations, with which the user terminal is able to make contact.

More accurate indications about the location of the user terminal can be determined, if not solely the coverage areas of transmitting stations are evaluated, but also the duration of the signal transmission (signal transmit times) between the user terminal and the transmitting station is recorded and included in the determination of the location. With the inclusion of a distance measurement through the signal transmit time, the location is in essence recorded as being on a circular curve or on the arc of a circle around a transmitting station. In the case of contact with two transmitting stations, it is recorded as the intersecting points of two circular curves or of two arcs of a circle.

If the user terminal is in a position to make contact with three or more than three transmitting stations of a mobile telephone network of today, then with the recording of the signal transmit time and with the help of an appropriate calculation algorithm, the location of a user terminal can be determined to within an accuracy of approx. 30 m.

As in the case of all triangulatory determination, the accuracy of the determination of the location becomes greater, the more transmitting stations are able to be included in the determination. It also becomes manifest, that the achievable accuracy increases, if for the determination of the location, stations with greater and smaller distances from the location to be determined are combined (as differing as possible distances). In addition, it is an advantage, if these stations are situated in as different as possible directions from the location to be determined. Therefore it is advantageous, to equip the algorithm utilized for the determination of the location in such a manner, that in such cases, in which the user terminal is in a position to contact a multitude of transmitting stations, it selects such transmitting stations for determining the location, which have as different as possible directions and distances from the location to be determined.

In the same manner as the signal transmit time between the user terminal and the transmitting station, it is possible also to record and utilize in the algorithm for determining the location, the intensity of the transmission, which also characterizes the distance between the user terminal and the transmitting station, and/or the radio bearing angle.

The accuracy of the determination of the location is also dependent on the accuracy of the data, which characterize the location of the transmitting stations. It is an advantage to not solely limit these data to geographical co-ordinates, but to also include transmission characteristics, such as, for example, signal reflections.

It is known to determine within the receiver section of a mobile telephone, whether a connection with a transmitting station is a direct one or if it is based on a reflected connection (echo) with a longer signal transmit time, and to use the result of this determination for the improvement of the reception. Information of this kind can also

be taken into consideration for improving the accuracy of the determination of the location, in that it is polled by the receiver section of the user terminal and in a corresponding algorithm is processed together with other data. Depending on the constellation of the aerial, from such location determination with an accuracy of down to 20 to 30 m can result.

In particular for cases, in which data available form the communication network for the determination of the location (locations and coverage areas of transmitting stations) do not allow a satisfactory precision, it is of advantage to extend the algorithm for the determination of the location with a memory for already determined locations together with the corresponding time and to expand it in such a manner, that for a moving user terminal previously determined locations and movement vectors elicited from them are included in the determination of the location, this at least for the verification of the plausibility of a newly determined location.

By the inclusion of established movement vectors for a moving user terminal, it also becomes possible to design the control of the search engine even more specifically. By matching the search engine function with the direction and the speed of the moving user terminal, the search can be restricted to such information, which relates to localities, which are geographically in front of (ahead of) the user terminal. Through the comparison of movement vectors with geographical information (e.g., the routes of motorways or railway lines), the search can also be restricted to correspondingly interesting information (e.g., for car drivers or travellers in railway trains).

For the further specific alignment of the search function it is also advantageous to store in memory additional values from experience with respect to search criteria

established by the respective user, in particular data from previous information requests, etc.

An algorithm for the location determination on the basis of acquired and recorded data is advantageously installed in the user terminal. This algorithm generates data, which characterize the location and which, for example, through a service channel are transmitted to the computer managing the database and which advantageously are directly able to be utilized by the search engine as search criteria.

The transmission system, for example, is a UMTS - mobile telecommunication network (Universal Mobile Telecommunications System) or else a GSM - telecommunication network with corresponding mobile user terminals. In the publication WO-93/12590, a method is described, with which from the signal transmit time and complex weightings the position of a mobile user terminal is determinable within a network cell. The publication DE-19524927 concerns itself with the object guidance within a UMTS - network, which also works with the location of a network participant. Both of the publications mentioned therefore are in a position to provide methods for the determination of the location for a mobile user terminal in a communication network, which determination of the location can be utilized as a component part of the method in accordance with the invention. It is also known, how to evaluate echo effects and with this to correct distances for reflection effects, which have been determined from signal transmit times. As a result, determination of locations based on recorded signal transmit times can be improved.

The communication between a user (via the user terminal) and the computer managing the database, resp., the search engine, can be automated, this means, designed in such a manner, that the user is automatically provided with information corresponding to his current location.

The communication between the user (via the user terminal) and the computer managing the database, resp., the search engine, can also be interactive, i.e., designed in such a manner, that the user actively requests information from a specific database and if so required is in a position to enter criteria, which the search engine is to apply in addition to the location criteria. The user if so required can also file information in the database, which is then automatically complemented with a location attribute, which corresponds to the momentary location of the corresponding user terminal.

It is obviously also possible to search the database with search engine equipped for the method in accordance with the invention, in which database the information is provided with location attributes, by actively entering selected such attributes. When doing so, however, it is necessary to pay attention, that the attributes are entered exactly, which may possibly lead to difficulties. Such difficulties will not arise when using the method according to the invention, i.e. when utilizing location data automatically determined in the communication system.

The databases and search engines, which are employed in the method according to the invention, as such do not differ from known databases and search engines and for this reason are not described here in more detail.

The information stored in the at least one database and equipped with location attributes can be of the most diverse nature, for example, it can be in the form of geographical maps, lists of hotels, parking spaces, cinemas, theatres or shops/businesses or also timetables for railway trains, electric tramcars, etc.

The method in accordance with the invention is in a position to play a central role in the individual traffic and information logistics in the case of major events, in par-

ticular in the case of events being staged within an extensive area. If a visitor to an event of this type carries with him a correspondingly equipped mobile user terminal, then already during the journey, in dependence of his individual approach route (railway or road), he is in a position to request information about conveniently situated, not yet occupied parking spaces or about "individual events". As a result, every person attending can help himself to information and plan his journey accordingly, therefore he or she can plan to avoid already full parking spaces, traffic jams or inconveniently located events, which are due to start in a too short time.

To achieve this purpose, it may well be advantageous to filter the information requested by a user not only by location, but also according to the actual time.

The method according to the invention can be used, for example, for leisure activities, touristic purposes or also for business applications. It creates a new market for providers of information, wherever corresponding communication networks are available. It goes without saying, that in this it is also possible to request information from databases equipped for the method according to the invention from stationary user terminals (e.g., from computers capable of connecting to the internet), the location of which is traceable, for example, from the telephone number used.

The mobile user terminal, which is utilized by the person requesting information, for example, just like a mobile telephone handset comprises a keyboard and a display, with the help of which the information gatherer selects the desired information from a menu-driven program and if so required is also in a position to more accurately define the location criteria (for example, by selecting a range magnitude value) and/or to indicate further search criteria. The information transmitted is then visually indicated on the display. It is, however, also possible to equip the user terminal for requesting the information to operate by means of a key push or for requesting the

information in a purely acoustic manner and then transmitting the requested information to the person requesting it in acoustic form.

It is an advantage to combine the method according to the invention with further services in such a manner, that selections made on the basis of the information transmitted can also initiate further actions, thus, for example, that tickets for chosen means of transportation and traffic routes can be directly ordered or purchased, tickets for selected events can be reserved or purchased or hotel rooms in selected hotels can be booked directly.

A further example for the application of the method described in the invention is an information gatherer, who wants to find out train departures from the closest railway station and would like to book a ticket for one of the departing trains. In this case it is advantageous, if the user for the access to the database of the railway operator, which e.g. contains the complete timetable, is in a position to define further search criteria (arrival time / departure time, destination) in addition to the automatically supplied criterion of his location. It is also advantageous, if the information transmitted is also filtered or capable of being filtered in accordance with the actual time. The selection of a certain train and the ordering of the corresponding ticket are carried out in an as such known manner not being part of the method in accordance with the invention.

A further application example is to look at a calendar of events of a geographical region, wherein the filtered information from the database is organized in such a manner, that the events are listed in a sequence of increasing distances between the location of the event and the current location of the user terminal. Further filtering according to the time is advantageous for automatically filtering out events already finished at the time of the request or events which have already started.

CLAIMS

1. Method for the acquisition of information from at least one database managed by a computer with a search engine, wherein from a user terminal, which co-operates with substantially stationary transmitting stations of a communication network, an information request is established, wherein the information request is transmitted to the computer and wherein the computer selects and/or organizes information from the database and transmits it to the user terminal, **characterized in that** the information stored in the database is provided with location attributes, that the information request is transmitted to the computer together with location data defining the location of the user terminal and that for selecting and/or organising the information, location data and location attributes are correlated.

2. Method in accordance with claim 1, **characterized in that** the user terminal is mobile and that the user terminal generates or acquires the location data and transmits these to the computer.

3. Method in accordance with claim 2, **characterized in that** the user terminal for generating or acquiring the location data contacts at least one transmitting station, that during this contact, data defining the identity of the at least one transmitting station are transmitted to the user terminal and that the user terminal procures from a memory device data defining the location of the transmitting station on the basis of the transmitted identity data.

4. Method according to claim 3, **characterized in that** the memory device for the data defining the location of the transmitting stations is provided in the user terminal or is accessible by the user terminal through the communication network.

5. Method in accordance with claim 3, **characterized in that** the data defining the location of transmitting stations is automatically transmitted in dependence of the location of the user terminal to the user terminal and is stored in a memory device of the user terminal.

6. Method according to claim 2, **characterized in that** for generating or aquiring the location data, the user terminal contacts at least one transmitting station and that during this contact, data defining the location of the transmitting station, are transmitted to the user terminal.

7. Method in accordance with claim 6, **characterized in that** the data defining the location of transmitting stations. are transmitted to the user terminal through a service channel.

8. Method according to one of claims 3 to 7, **characterized in that** the data defining the location of transmitting stations, relate to the geographical position and to the coverage area of the transmitting stations.

9. Method in accordance with one of claims 3 to 8, **characterized in that** during the contact between the user terminal and the transmitting stations data relating to the transmission characteristics are recorded and that these data in addition to the data defining the location of the transmitting station are utilized for generating the location data.

10. Method according to claim 9, **characterized in that** the recorded data relate to the signal transmit times, the signal intensity, signal reflections or the radio bearing angle.

11. Method in accordance with one of claims 3 to 10, **characterized in that** for generating the location data the user terminal selects from a plurality of contacted transmitting stations, ones with distances and directions to the user terminal being as different as possible.

12. Method according to one of claims 1 to 11, **characterized in that** for search engine control, in addition to the determined location data further search criteria are employed.

13. Method in accordance with claim 12, **characterized in that** the additional search criteria are geographical attributes of the determined location and/or the time.

14. Method according to one of claims 2 to 13, **characterized in that** determined location data are stored in memory together with the time, at which they were determined, and that they are made use of as movement vectors for further location determinations.

15. Method in accordance with one of claims 1 to 14, **characterized in that** for search engine the control, in addition to the acquired or generated location data further search criteria are entered on the user terminal.

16. System for the acquisition of information, which system comprises a communication network with a multitude of substantially stationary transmitting stations, a plurality of user terminals co-operating with the communication network for requesting and receiving information and at least one database with memory devices for storing the information and a computer with a search engine for managing the database and for controlled transmission of information to user terminals, **characterized in that** the system further comprises means for generating and acquiring location data relating to the location of user terminals, and means for transmitting the location data to the computer of the database, and that the computer and the database are equipped for selecting and/or organizing information in accordance with location data.

17. System in accordance with claim 16, **characterized in that** at least a part of the user terminals is mobile and that the means for generating or acquiring location data are provided in the user terminals.

18. System according to claim 17, **characterized in that** the means for generating or acquiring of location data comprise means for contacting transmitting stations and means for receiving data from the contacted transmitting stations.

19. System in accordance with claim 18, **characterized in that** the means for generating and acquiring location data comprise means for acquiring data from external memory devices.

20. System in accordance with claim 19, **characterized in that** the communication network comprises a service channel for transmitting data between transmitting stations and user terminals and external memory devices.

21. System according to one of claims 16 to 20, **characterized in that** means for recording data relating to the transmission characteristics of the transmission between the user terminal and a transmitting station are provided and that the means for generating location data is equipped for generating location data from acquired and recorded data.

22. System in accordance with claim 21, **characterized in that** the means for recording transmission characteristics are equipped for recording signal transmit times, signal intensities, signal reflections and/or radio bearing angles.

23. System according to one of the claims 16 to 22, **characterized in that** the communication network is a UMTS - network or a GSM - wireless network.

ABSTRACT

For the acquisition of information from a database with a search engine, in which information with location attributes is stored, the information is requested from a user terminal, in particular from a mobile user terminal, which co-operates with substantially stationary transmitting stations. The request is transmitted from the user terminal to a computer managing a database together with data, which define the location of the user terminal. These location data are generated by the user terminal or else acquired on the basis of data, which are transmitted to the user terminal when it establishes contact with at least one transmitting station of the communication network. The data, which are made use of as location data or for generating location data, and which are procured from memory devices or through measurements, relate to geographical locations of transmitting stations, to the coverage area of transmitting stations, to signal transmit times, signal intensities, signal reflections, radio bearing angles, etc. The computer makes use of the location data for controlling the search engine in such a manner, that only information with corresponding location attributes is selected from the database or else information is organized according to said attributes. The information selected and/or organized according to location attributes is thereupon transmitted to the user terminal. Such information retrieval process is automatically very specific and is suitable in particular for tourism, traffic, transport and communications, economic purposes, etc.

(no Figure)

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

As the below named inventor(s), I/we declare that:

This declaration is directed to:

☐ The attached application, or

☒ Application No. PCT/CH99/00530, filed on November 11, 1999,

☐ as amended on _____(if applicable),

I/we believe that I/we am/are the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought;

I/ we have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment specifically referred to above;

I/we acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me/us to be material to patentability as defined in 37 CFR 1.56, including material information which became available between the filing date of the prior application and the National or PCT International filing date of the continuation-in-part application, if applicable; and

All statements made herein of my/own knowledge are true, all statements made herein on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.

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☐ Additional inventors are being named on _____ additional form(s) attached hereto.

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